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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hiroyuki Yoda

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EXAMINER

BERDICHEVSKY, MIRIAM

ART UNIT

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1795

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/780,696	Applicant(s) YODA ET AL.	
	Examiner MIRIAM BERDICHEVSKY	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/5/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

Claims 1-10 are canceled. Claims 11, 15 and 17 are amended. Claims 18-24 are new. Claims 11-24 are currently pending.

Status of Rejections

All rejections from the previous office action are withdrawn in view of Applicant's amendments. New ground of rejection is presented as necessitated by amendment.

Claim Objections

Claim 23 is objected to because of the following informalities: It is the Examiner's opinion that "FVA" in line 2 should read "EVA". Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 11-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 11 has been amended to include a negative limitation, "excluding said paired portions", in line 23. Any negative limitation must have basis in the original disclosure. If alternative elements are positively recited

Art Unit: 1795

in the specification, they may be explicitly excluded in the claims (MPEP 2173). The Examiner does not find support in the original specification for exclusion of the paired sides nor does the Examiner find positive support for each possible configuration from which elements can be excluded.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1795

6. Claims 11-18, 20 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoda (US 20030010378), Sakaitani (JP 2001262782) and Fuglevand (US 20020018922).

As to claim 11, Yoda teaches a photovoltaic module comprising: a first plate of glass (21), a second plate of glass opposite the first plate of glass (22), a spacer member forming a space between the glass plates, a photovoltaic subassembly arranged in the space between the glass (23s, 32s), a plurality of solar cells in an array electrically interconnected (1), a translucent first substantially rigid plate of resin adjacent the light receiving side (light receiving side 4 and 5), a translucent second substantially rigid plate of resin adjacent the non-light receiving side (non light receiving side 5), a translucent filler layer between the first and second substantially rigid plates (non-light receiving side of 4) (figure 6), a conductive wire provided in the filler layer electrically connecting the cells and allowing an external electrical output (figure 3: wires connecting 11s), paired facing portions of the spacer member (figure 4: 32), an output terminal provided in a portion of the spacer member perpendicular to the paired portions (figure 4) and the conductive wire having an end drawn out from an end of the filler layer connected to the output terminal (figure 4).

Yoda is silent to a guiding groove provided inside the paired facing portions of the spacer member for supporting the subassembly and when in combination the terminals being in the spacer portion which pulls out of the grooved portions.

Sakaitani teaches a photovoltaic module comprising an array of interconnected solar cells which slide along grooves of paired facing spacer portions which support the

Art Unit: 1795

solar cells allowing for removability and replacement of solar cells when damaged (figure 1, [0015]). It would have been obvious at the time of the invention to use the grooved paired facing spacer members of Sakaitani in Yoda because the grooves allow for easy removability and replacement of solar cells, as taught by Sakaitani ([0015]). Fuglevand is relied upon as a general teaching of an electronic device with grooved paired portions for the removability of an electronic device wherein the terminals are located on the portion of the device perpendicular to the portions on which the device slides (figure 3: 69s). It would have been obvious to one of ordinary skill in the art at the time of the invention choosing from a finite number of terminal locations to place the terminals of modified Yoda on the portions perpendicular to the portion on which the device slides so as not to damage the terminals especially in light of the fact that Sakaitani is silent to the location of the terminals.

Regarding claim 12, modified Yoda teaches an air layer between the first and second plates of glass and the subassembly (Yoda: figure 3).

Regarding claim 13, modified Yoda teaches that the spacer member has butyl rubber attached thereto and the spacer member is fitted between the first and second glass plates and silicon resin (silicone) is applied to the outer spacer member (Yoda: [0058] and [0064]).

Regarding claim 14, modified Yoda teaches that the subassembly is detachably attached to a frame formed of the glass plates and spacer member (Sakaitani: figure 1).

Art Unit: 1795

Regarding claim 15, modified Yoda teaches that the guiding grooves slidably hold the subassembly to detachably attach the subassembly to the frame (Sakaitani: figure 1).

Regarding claim 16, teaches that the glass plates can be sheet glass ([0057]).

Regarding claim 17, modified Yoda teaches that the module has a light receiving surface unbonded to the filler layer (Yoda: figure 2).

Regarding claim 18, modified Yoda teaches that the rigid plate member contains fluoro-resin ([0058]).

Regarding claim 20, modified Yoda teaches that the second substantially rigid plate is translucent ([0058]). The Examiner notes that translucent broadly interpreted reads on transparent especially because of the dependency of claim 21 on claim 20 which requires transparency.

Regarding claim 23, modified yoda teaches that the filler layer contains PVB ([0058]).

Regarding claim 24, modified Yoda teaches that the solar cells are sealed in a filler layer via lamination (Yoda: [0060] and [0065]).

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoda, Sakaitani and Fuglevand as applied to claim 20, and further in view of Nakanishi (US 6222115).

Regarding claim 19, modified Yoda is silent the first substantially rigid plate being a stack wherein one film contains fluoro-resin and another film containing PET. Nakanishi teaches that it is well known in the solar arts to use a multi layer film of fluoro-resin and

Art Unit: 1795

PET because the combination improves resistance to humidity, as taught by Nakanishi (col. 1, lines 45-60). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the stack of Nakanishi in modified Yoda to improve humidity resistance, as taught by Nakanishi (col. 1, lines 45-60).

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoda, Sakaitani and Fuglevand as applied to claim 20, and further in view of Yaba (US 5,059,254).

With respect to claim 21, modified Yoda fails to disclose wherein at least one of the first and second plate members/interlayer of resin is colored and transparent. Yaba discloses a photovoltaic module (Figure 5) with a colored polyvinyl butyral layer (4) and further teaches that it is preferable that interlayer is a colored polyvinyl butyral and transmits the visible light in ranges from 5 to 60% (col.7; lines: 40-43). Yaba et al. further teaches that if the light transmittance is higher than 60% it is difficult to reduce the glare from the back electrode and/or grid electrode of a solar cell, and if the transmittance is less than 5% then the visibility is greatly reduced (col.7; lines: 42-52). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the colored polyvinyl butyral resin interlayer of Yaba to the subassembly of the photovoltaic device of modified Yoda in order to achieve from 5-60% visible light transmittance otherwise if the transmittance is higher than 60% it may be difficult to reduce the glare from the back electrode of the solar cell/photovoltaic module and if the transmittance is less than 5% then the visibility is greatly reduced.

Art Unit: 1795

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoda, Sakaitani and Fuglevand as applied to claim 11, and further in view of Ichinose (US 5681402).

With respect to claim 6, modified Yoda is silent to the subassembly of claim 4 above, wherein at least one of the first and second plate members of resin is an ultraviolet absorber. Ichinose teaches the use well known UV absorbers in EVA and fluoro-resin systems for protection of solar cells (col. 25, lines 26-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the UV absorber of Ichinose in the resin system of modified Yoda because UV absorbers improve the weatherability of the resin, as taught by Ichinose (col. 25, lines 26-50).

Response to Arguments

10. Applicant's arguments with respect to claim 11 have been considered but are moot in view of the new ground(s) of rejection as necessitate by amendment.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

Art Unit: 1795

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MIRIAM BERDICHEVSKY** whose telephone number is (571)270-5256. The examiner can normally be reached on M-Th, 10am-8pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/780,696

Page 10

Art Unit: 1795

/M. B./

Examiner, Art Unit 1795

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795